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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,405	10/28/2003	Seiichi Mogi	108201-00013	9222

4372 7590 02/17/2005

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EXAMINER

NGUYEN, TRAN N

ART UNIT PAPER NUMBER

2834

DATE MAILED: 02/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,405

Applicant(s)

MOGI ET AL.

Examiner

Tran N. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-3,5,7 and 8 is/are rejected.
- 7) ☐ Claim(s) 4 and 6 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-3, 5 and 7-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujikawa et al (USP 5,533,712)** in view of **Dow et al (USP 3816782)**.

Fujikawa discloses a drive system comprising:

An electrical motor (3);

An input shaft (82) that is coupled with the motor's shaft (4);

A housing (13) covering and retaining the motor

A first bearing member (10) mounted in the housing (13, at part 13a, fig 2) to support rotatably an end of the motor shaft on one end side that opposite to the couple portion (fig 2) of the motor shaft;

A elastic member (64) that is a coil spring being provided at the coupled portion and sandwiched between the motor shaft (82) and the input shaft (4);

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An output shaft (2) disposed relatively parallel to the input shaft and at least a couple of helical gears (81, 83, 84, 86, 87, 89 of fig 2) enable power transmission from the input shaft to the output shaft;

A second bearing (10) (fig 11) mounted in the housing to support rotatably the couple portion of the motor shaft.

Fujikawa substantially discloses the claimed invention, *except for the limitations of the elastic member generates reaction forces in opposite axial direction to push the motor shaft and the input shaft away from each other and wherein the reaction forces of the elastic member act on the motor shaft to push the first bearing member, specifically a floating bearing, axially, thereby pushing the housing, and an axial thrust acting from the helical gears on the input shaft pushes the first bearing member to the housing via the motor shaft, and an axial thrust acting from the helical gears on the input shaft pushes the second bearing member to the housing via the motor shaft.*

Dow, however, teaches a motor having a floating bearing for the purposes of providing a thrust system having a floating bearing for distributing thrust load in at least one direction of the thrust load, and automatically compensating for wear to the thrust system, and reducing free end play or axial movement of the shaft. Dow's floating bearing system comprising: a spring (30) mounted over the shaft (14) on the bearing (19) side of the rotor assembly (3) and spring (30) has a radially inwardly projecting part 33. The part 33 is designed to engage a thrust collar (34) which is a cylindrical section having an axial opening receiving the motor shaft (14) in a slip fit. Cylindrical section defined in part by an outer wall (37) having a groove (38) in it, running in an axial direction for receiving the projecting part of the spring. Outer wall (37) extends radially outwardly to form a flange (39) having a peripheral lip (40) formed annularly about it for engage a thrust washer (41), which has an axial opening through it and it is mounted on the shaft in a friction fit. The spring (30), thrust collar (34), thrust washer (41), and thrust surface (21) form a floating bearing system that support thrust force acting on the shaft to pushes the bearing to the housing.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the motor drive unit with a floating bearing system, as taught by Dow. This modification of incorporating a floating bearing in the motor drive unit would enable the elastic member's reaction forces to push the motor shaft and the input shaft away from each other and thereby pushing the housing, and an axial thrust acting from the helical gears on the input shaft pushes the first and second bearings to the housing via the motor shaft. Doing so would provide the motor drive unit with a mechanism able to distribute thrust load in at least one direction of the thrust load, and to automatically compensate for wear to the thrust system, and to reduce free endplay or axial movement of the shaft.

3. **Claims 1 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fukazawa et al** (JP 200-188452) in view of **Stenta** (USP 6,376,952).

Fukazawa discloses a drive system comprising:

- An electrical motor (7);
- An input shaft (4) that is coupled with the motor's shaft (5);
- A housing (2) covering and retaining the motor
- A first bearing member (unnumbered) mounted at one end of the housing to support rotatably an end of the motor shaft on one end side that opposite to the couple portion (fig 2) of the motor shaft;
- A elastic member (11) that is a coil spring being provided at the coupled portion and sandwiched between the motor shaft and the input shaft

Fukazawa substantially discloses the claimed invention, except for the limitations of the elastic member generates reaction forces in opposite axial direction to push the motor shaft and the input shaft away from each other and wherein the reaction forces of the elastic member act on the motor shaft to push the first bearing member, specifically a floating bearing, axially, thereby pushing the housing.

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Stenta, however, teaches a motor having a floating bearing (figs 3-5) for the purposes of distributing thrust load in at least one axial direction. Stenta also teaches that floating bearing system would be self aligning, and thus compensates for deviations in the axial alignment of the motor shaft to maintain the optimum efficiency of the motor and reduce wear on the bearing, extending the life of the bearing system.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the motor drive unit with a floating bearing system, as taught by Stenta. This modification of incorporating a floating bearing in the motor drive unit would enable the elastic member's reaction forces to push the motor shaft and the input shaft away from each other and thereby pushing the housing. Doing so would provide the motor drive unit with a mechanism able to maintain the optimum efficiency of the motor and reduce wear on the bearing.

Allowable Subject Matter

Claims 4 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

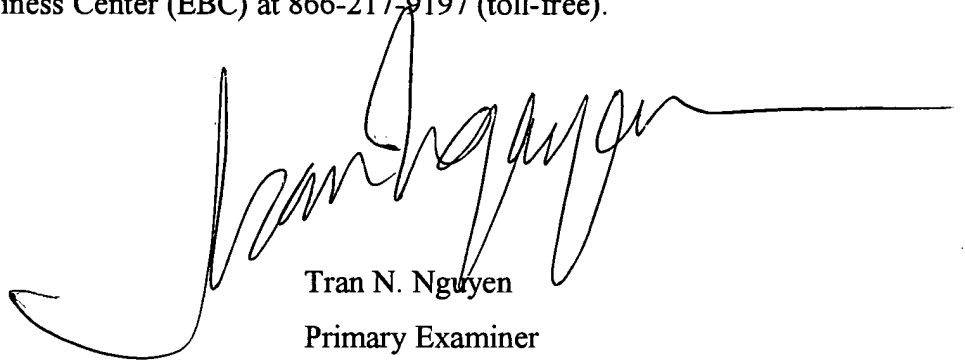
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (571) 272-2030. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Tran N. Nguyen', with a long horizontal line extending to the right.

Tran N. Nguyen
Primary Examiner
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